

# **FISHERIES MANAGEMENT AND EVALUATION PLAN**

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**Mid-Columbia Steelhead ESU**

**John Day River**

**Steelhead, Trout, and Warmwater Fisheries**

**Prepared by**

**Oregon Department of Fish and Wildlife**

**March, 2001**

**Fishery Management and Evaluation Plan**

Mid-Columbia Steelhead,  
John Day River Fisheries.

**Responsible Management Agency.**

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**Date Completed:** March 2001

**SECTION 1. FISHERIES MANAGEMENT**

**1.1) General objectives of the FMEP.**

The objective of this FMEP is to conduct fisheries for steelhead, trout, and warmwater species consistent with the conservation and recovery of wild steelhead populations in the John Day River. In addition, conditions under which a consumptive fishery on wild steelhead within the John Day basin could be authorized are explicitly described (currently, only a non-consumptive fishery occurs in this basin).

**1.1.1) List of the “Performance Indicators” for the management objectives.**

The primary performance indicator will be the density of steelhead redds within the John Day basin, with particular weight given to the least healthy of the 6 populations, the Middle Fork and Upper John Day. In addition, the count of wild, A-run steelhead passing Bonneville Dam will be used as a second means to gauge the strength of the wild population. Finally, juvenile steelhead density estimates will be used to determine if natural production areas are fully seeded.

The “trigger” used to potentially authorize consumptive fisheries in the John Day basin for wild steelhead will be a combination of average redd densities and the escapement of wild, type-a, steelhead over Bonneville Dam.

Of the 6 John Day steelhead populations, the Middle Fork and Upper John Day populations were determined, through a PVA assessment, to be at greatest conservation risk (Chilcote 2001).

An average density of 2.7 redds per stream mile for these 2 populations was set as a performance indicator. When these populations exceed this density it will be assumed that steelhead in the John Day basin are making good progress towards recovery. The density of 2.7 redds/mile is equal to twice the average viability threshold for these two populations (see section 1.3.1).

The count of wild a-run steelhead at Bonneville Dam can be used to predict the average redd density of steelhead in the John Day basin (Figure 1). An escapement over Bonneville Dam greater than 38,000 wild steelhead will be used as another performance indicator for John Day steelhead.

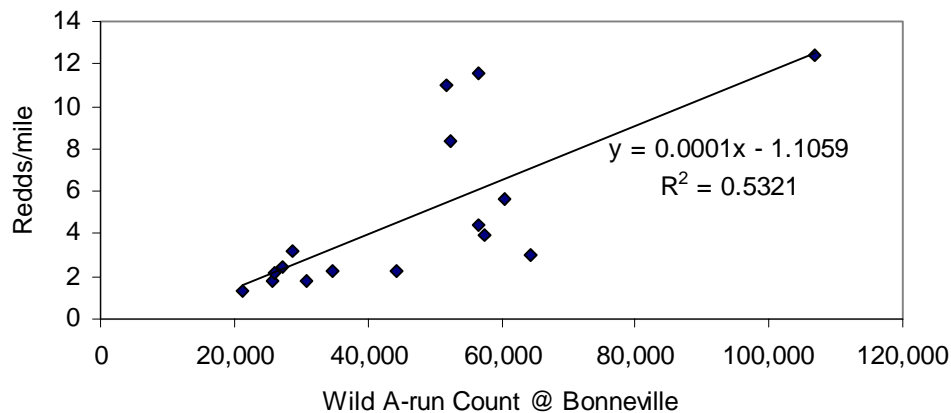


Figure 1. Relationship between Bonneville Dam counts of wild A-run summer steelhead and redd densities in the John Day River.

Based on the regression illustrated in Figure 1, a Bonneville escapement of 38,000 wild fish corresponds with a density of 2.7 redds per mile in the John Day basin. When the Bonneville escapement of wild a-run steelhead exceeds 38,000, it will be used as a secondary indicator to confirm that progress towards recovery of John Day steelhead is occurring.

Implementation of a consumptive fishery on wild fish would be allowed only if the conditions under the following scenario are reached.

- Three consecutive years of spawning surveys in the John Day River that exceed 2.7 redds per mile.
- Four consecutive years of 38,000 wild A-run steelhead counted over Bonneville Dam. The first three years that exceed 38,000 wild A-run steelhead counted at Bonneville Dam must correlate with the three consecutive years of redd counts that exceed 2.7 redds per mile.
- During the fourth year when 38,000 wild A-run steelhead are counted at Bonneville Dam the Department will propose that the Fish and Wildlife Commission (Commission) adopt temporary rules modifying the current wild fish catch and release rule to allow a consumptive bag limit of a one wild steelhead per day, five wild steelhead per year (only for that portion of the basin upstream of Cottonwood Bridge at RM 38). Wild A-run counts at Bonneville Dam will be available by mid- to late-August so the proposal would be heard by the Commission during the meeting normally scheduled for August.
- The Commission must vote in favor of the temporary rule after public testimony.
- If all the above conditions are met, the consumptive fishery on wild steelhead above Cottonwood Bridge would take place beginning in late September and continue through the following April. If the performance indicators continue to be above the levels specified, then the temporary rule allowing harvest of wild steelhead would remain in effect in following years.

If a consumptive fishery on wild steelhead is allowed there must also be a mechanism for closing the fishery if the performance indicators above are not met. If either the wild A-run steelhead count at Bonneville Dam falls below 38,000 or the redd count falls below 2.7 redds/mile for one year, then the Department would propose to revert back to a catch and release only fishery.

Another indicator of population health is the density of age 1+ *Oncorhynchus mykiss* juveniles found in steelhead spawning and rearing tributaries. These densities can be used to determine if summer rearing habitat is being adequately seeded by the number of adult steelhead escaping to spawn. Data collected for several years throughout the John Day River basin by single pass electroshocking indicate that minimum densities of age 1+ *O. mykiss* average between 0.05 and 0.28 fish/m<sup>2</sup> (Table 1). This compares favorably with benchmarks established by Satterthwaite (1999) of 0.05 fish/m<sup>2</sup>. A basin-wide average of 0.05 age 1+ juvenile steelhead per m<sup>2</sup> will be used as a third indicator. Densities in excess of 0.05 fish/m<sup>2</sup> will be interpreted as evidence that John Day steelhead are making progress towards recovery.

Table 1. Mean densities of age 1+ *O. mykiss*. 1990-1996. Densities were estimated by single pass snorkeling or electroshock with no block nets representing the known minimum number of fish per meter squared. Density estimates in 2000 represent electroshock 2-pass removal estimates with block nets.

Subbasin	Year					
	1990	1991	1992	1994	1996	2000
North Fork	0.05	0.13	0.28	0.19	0.23	
Middle Fork	0.15	0.20				0.23
Mainstem	0.19	0.22				

#### 1.1.2) Description of the relationship and consistency of harvest management with artificial propagation programs.

There are no hatchery releases of fish of any species into any flowing waters in the John Day River system. In order to minimize potential negative interactions between out of basin strays hatchery steelhead and John Day basin wild fish, it is necessary to remove these strays during a steelhead fishery. No feasible opportunities exist to remove these strays by any other method, since there are no dams, and no counting facilities. Take of listed fish will be limited to hook and release mortality during years when a "consumptive" harvest is not allowed, and will be limited to less than 5% when spawning survey counts and counts of wild A-run steelhead at Bonneville Dam warrant a more liberal bag limit. Significant numbers of strays have been documented in the John Day River below Cottonwood Bridge (RM 38) and a popular fishery targets those marked hatchery fish. The fishery usually begins in late-September or early-October (depending on water temperatures and stream flows).

The best available scientific information suggests hook and release mortality of adult steelhead is low. Hooton (1987) found catch and release mortality of adult steelhead to be 3.4% (n= 3,715 fish) on average when using a variety of fishing tackle, including barbed and barbless hooks, bait and artificial lures. Hooton concluded that catch and release of adult steelhead was an effective mechanism for maintaining angling opportunity without negatively impacting stock recruitment. Reingold (1975) showed adult steelhead hooked, played to exhaustion, and then released returned to their target spawning stream as well as steelhead not hooked and played to exhaustion.

However, these studies were conducted when water temperatures were relatively cool. Catch and release mortality of steelhead is likely to be higher if the fishery occurs during warm water conditions. In a study conducted on the catch and release mortality of steelhead in a California river, Taylor and Barnhart (1999) reported over 80% of the observed mortalities occurred at stream temperatures greater than 21 °C.

Steelhead fisheries in the John Day River in late September generally occur when maximum stream temperatures are less than 21 °C. Average daily water temperatures in the John Day River usually drop below 60° F (15.5° C) by the end of September (water temperature data collected by Bureau of Land Management from 1995-1997 at Service Creek), which coincides with adult steelhead entry into the lower John Day River, and the start of the fishery. Creel surveys indicate few anglers fish for steelhead in the John Day River prior to late September.

**1.1.3) General description of the relationship between the FMEP objectives and Federal tribal trust obligations.** (This will be further addressed in section 4).

The John Day River lies within tribally ceded lands of the Confederated Tribes of the Umatilla Indian Reservation and The Confederated Tribes of the Warm Springs Indians of Oregon. Although neither tribe has commercially harvested steelhead within the John Day River in recent years, both Tribes plan to exercise their rights to harvest steelhead during ceremonial or subsistence fisheries within the John Day River basin in the future. This plan does not address in-river tribal harvest. That harvest would be included in other agreements or plans.

Harvest impacts proposed in this FMEP will be consistent with and will not preclude proposed future harvest of John Day steelhead by tribal co-managers.

**1.2) Fishery management area(s).**

The area being considered for this plan includes the sport fishery for adult steelhead , trout and warmwater fish within the John Day River basin above the John Day Reservoir pool at Tumwater Falls (Figure 2).

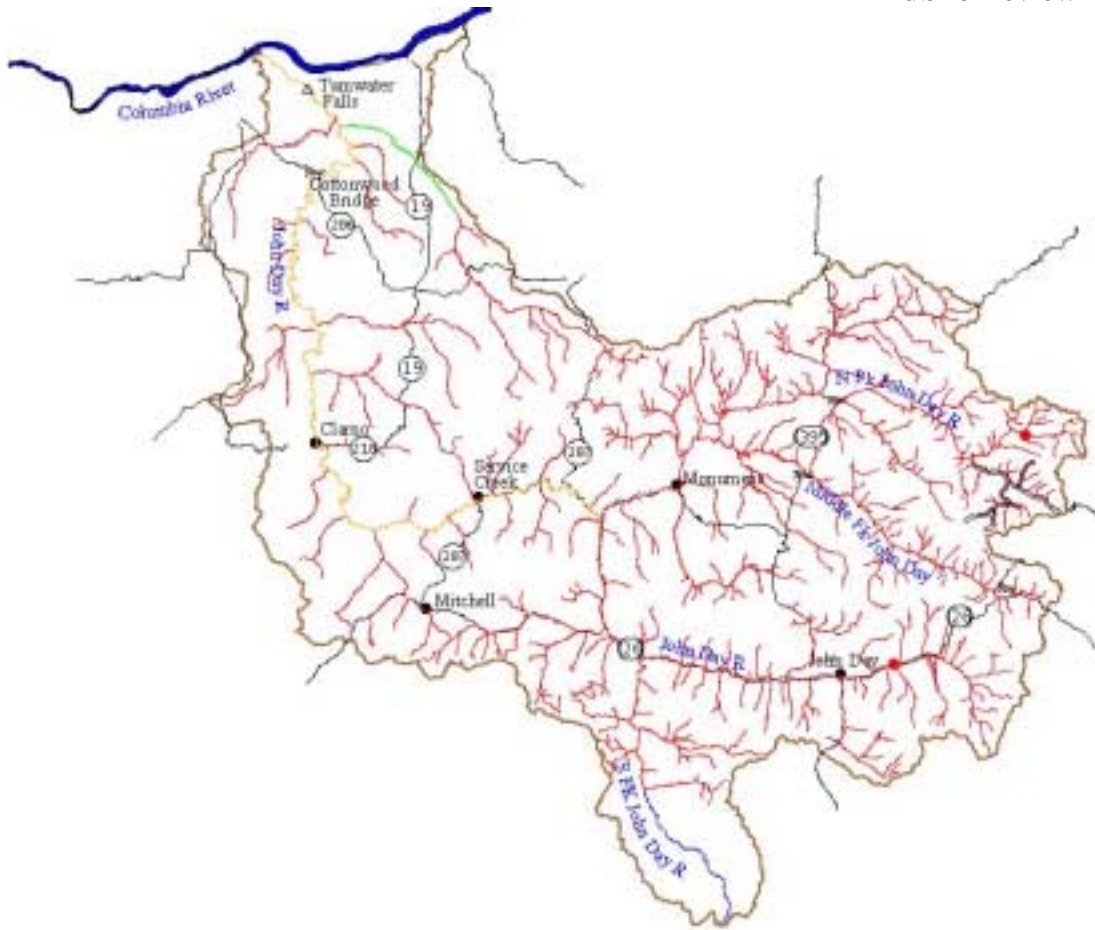


Figure 2. Map of John Day River Basin. Streams in red indicate presence of spawning and rearing *O. mykiss*, yellow and green indicates rearing and migration. Streams outlined in black are closed to all angling (Middle Fork from Highway 7 to Summit Creek and Granite Creek and tributaries).

#### 1.2.1) Description of the geographic boundaries of the management area of this FMEP.

This plan includes all steelhead, trout and warmwater fisheries within the John Day River basin from the head of slack water of Lake Umatilla (created by John Day Dam) to the headwaters. The John Day River basin drains nearly 8,100 square miles of an extensive interior plateau lying between the Cascade Range and the Blue Mountains in northeastern Oregon and is the second largest undammed river west of the Mississippi. It is the fourth largest basin in Oregon and the third largest east of the Cascade Range and is one of the most diverse geologically. Elevations range from a low of 200 feet at the mouth to over 9,000 feet in the Strawberry Mountains (OWRD, 1988). This complex geology and geography have undoubtedly contributed to the diversity of fish life within the basin.

**1.2.2) Description of the time periods in which fisheries occur within the management area.**

Steelhead Fishery

- Mouth of the John Day to Cottonwood Bridge RM 38. Year round. Catch and release of all unmarked steelhead to protect any stray upper Columbia listed steelhead.
- RM 38 Cottonwood Bridge to RM 185 at Kimberly. Year round.
- RM 185 at Kimberly to RM 257, the mouth of Indian Creek. Sept.1 to April 15.
- Mouth of the North Fork to RM 60 at Hwy 395 bridge. Sept.1 to April 15.
- Mouth of the Middle Fork to RM 24.2 at Hwy 395 bridge. Sept.1 to April 15.
- South Fork. Closed to adult steelhead angling.
- All other tributaries. Closed to adult steelhead angling.

Trout Fishery

- All streams (exceptions listed below) within the John Day River basin. Open for trout angling from the fourth Saturday in May to the end of October.
- The following streams are closed to all angling: Granite Creek system, Middle Fork John Day River from Highway 7 to Summit Creek.

Warmwater Fishery

- Entire John Day River. Open only during trout, salmon, or steelhead seasons.
- Warmwater angling is largely dependent upon water temperatures and water clarity. Significant angler effort does not begin until mid- to late-May in most years. The bulk of the warmwater fishery takes place in the lower mainstem from RM 40 to RM 185 where steelhead do not rear.

**1.3) Listed salmon and steelhead affected within the Fishery Management Area specified in section 1.2.**

Six steelhead populations in the John Day River, that are part of the Mid-Columbia ESU, will be affected by this FMEP. These populations include: Lower John Day, Upper John Day, Lower North Fork, Upper North Fork, South Fork, and Middle Fork.

The Lower John Day population includes the mainstem John Day River and all tributaries from the Tumwater Falls at RM 10 to the mouth of the South Fork at RM 212. The Upper John Day population includes the mainstem John Day River and tributaries from the mouth of the South Fork to the headwaters. The Lower North Fork includes the mainstem North Fork and tributaries from its confluence with the mainstem at Kimberly to the mouth of the Middle Fork at RM 32.5. The upper North Fork population includes the mainstem North Fork and tributaries from the mouth of the Middle Fork to the headwaters. The South Fork population includes the mainstem South Fork and tributaries from its confluence with the John Day River at Dayville to Izee Falls, a barrier to anadromous fish at river mile 28.5. The



Middle Fork population includes the mainstem Middle Fork and all tributaries from its confluence with the North Fork to the headwaters.

Other wild steelhead may be encountered during this fishery, but the extent and location of where they occur in the basin is largely unknown. By excluding a consumptive fishery on wild fish below Cottonwood Bridge, protection of ESA listed upriver (Upper Columbia and Snake River) and other steelhead populations within the Middle Columbia Steelhead ESU (Deschutes, Umatilla, and Yakima) will be maximized. Stray hatchery fish have been observed during incidental and statistical creel programs since 1986. The number of stray hatchery steelhead observed during these surveys appears to be slightly increasing during the last 10 years, however, a creel program has not been ongoing to verify these observations. A few coded wire tagged steelhead have been recovered from angler caught fish. A summary of those recovered is presented in Table 2.

Table 2. Summary of coded wire tagged steelhead captured by anglers in the John Day River Basin.

Year	Release Location	Recovery Location
1996	Irrigon Hatchery	Rock Creek (RM 18)
1996	Hells Canyon (Snake R.)	Rock Creek
1996	Little Sheep (Wallowa R.)	Rock Creek
1986	Round Butte (Deschutes R.)	Rock Creek
1988	Upper Columbia	Little Ferry Canyon (RM 55)
1994	Big Canyon (Wallowa R.)	North Fork John Day River (RM 185)
1992	Wallowa Hatchery	North Fork John Day River

This information should be used with caution and should not be used to estimate stray rates, numbers of strays, or extent of straying within the basin. They are simply recognition that straying does occur and documents where the observed strays originated. With this few of CWT recoveries it is difficult to assess the actual number of strays with any degree of accuracy.

**1.3.1) Description of “critical” and “viable” thresholds for each population (or management unit) consistent with the concepts in the technical document “Viable Salmonid Populations and the Recovery of Evolutionarily Significant Units.”**

Methods to determine critical and viable thresholds are described by Chilcote (2001). Critical and viable thresholds were determined for six populations within the John Day River basin. A description of these populations and the boundaries of each is described in Section 1.2 of this plan. The abundance thresholds for “critical” and “viable” are presented in Table 3.

**Table 3. List of the natural fish populations, “Viable Salmonid Population” thresholds, and associated hatchery stocks included in this FMEP.**

Natural Populations (or Management Units)	Critical Thresholds	Viable Thresholds	Associated hatchery stock(s)	Hatchery stock essential for recovery? (Y or N)
Lower John Day River	Abundance: 0.2 fish per mile or 0.07 redds/mile	Abundance: 0.8 fish per mile or 0.6 redds/mile	None	N
Lower North Fork John Day River	Abundance: 0.2 fish per mile or 0.14 redds/mile	Abundance: 0.9 fish per mile or 0.7 redds/mile	None	N
Upper North Fork John Day River	Abundance: 0.1 fish per mile or 0.07 redds/mile	Abundance: 0.5 fish per mile or 0.4 redds/mile	None	N
Middle Fork John Day River	Abundance: 0.8 fish per mile or 0.6 redds/mile	Abundance: 2.2 fish per mile or 1.6 redds/mile	None	N
South Fork John Day River	Abundance: 0.5 fish per mile or 0.4 redds/mile	Abundance: 1.7 fish per mile or 1.3 redds/mile	None	N
Upper John Day River	Abundance: 0.5 fish per mile or 0.4 redds/mile	Abundance: 1.5 fish per mile or 1.3 redds/mile	None	N

Steelhead spawning surveys have been conducted within the basin since 1959 on a variety of tributaries. In the early years, only a few miles of spawning areas were surveyed. As the need for additional information emerged and resources for doing the surveys increased, more miles of survey were added until most of the same streams are surveyed each year (Figure 3). In recent years, the number of personnel available to conduct surveys has declined and fewer miles of stream are covered. Results of spawning surveys are presented in Appendix A.

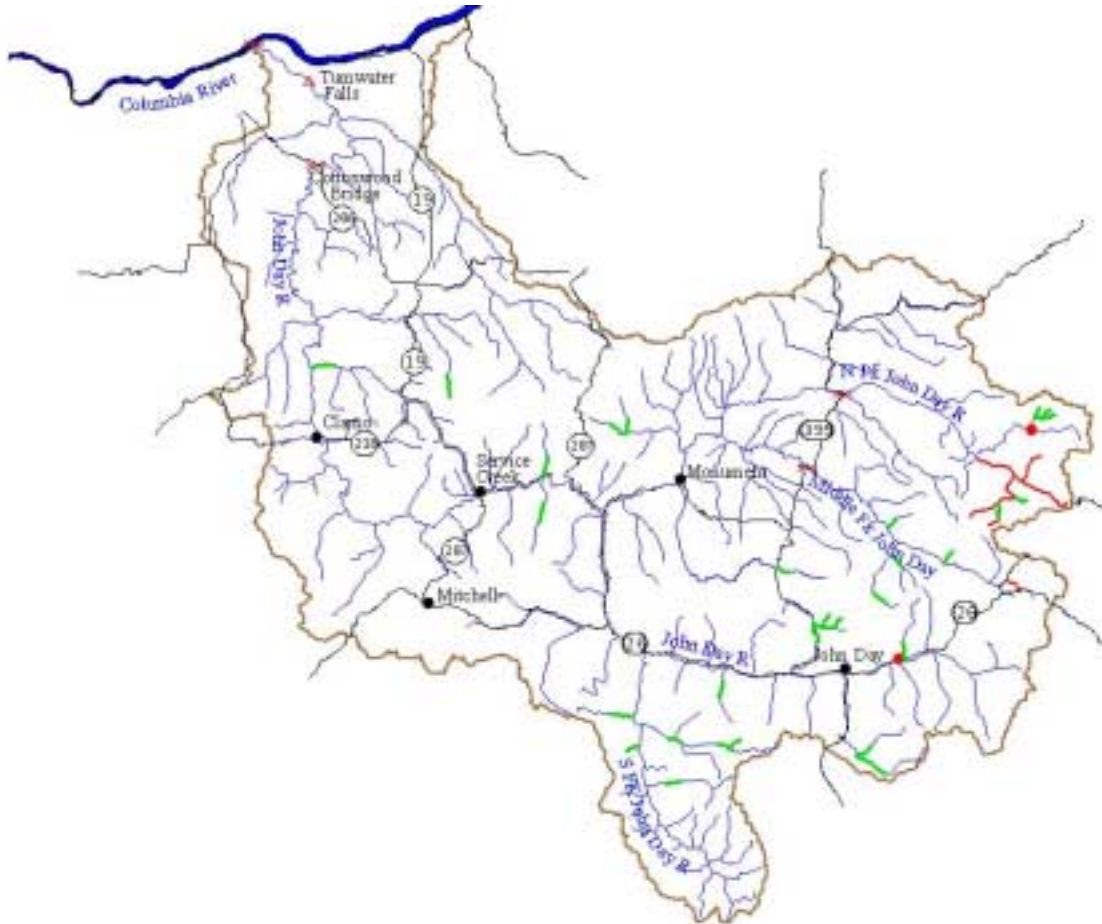


Figure 3. Map of the John Day basin showing location of steelhead spawning index surveys, as indicated by green. Streams highlighted in red are closed to all angling.

Spawning densities for all populations in the John Day basin have exceeded those identified by Chilcote (2001) as being necessary for viability for all years. Results of the PVA modeling indicate that minimum observed abundances for all sub-populations exceed the viable and critical thresholds (Table 4).

Table 4. Observed 6-year average wild steelhead abundance, conservation abundance thresholds for John Day River sub-populations. Abundance expressed as spawners per stream mile.

<u>Sub-Population</u>	<u>Observed Abundance</u>	<u>Viable Threshold</u>	<u>Critical Threshold</u>
Lower John Day	2.7	0.8	0.2
Lower NF John Day	2.6	0.9	0.2
Upper NF John Day	3.0	0.5	0.1
MF John Day	4.8	2.2	0.8
South Fork John Day	2.6	1.7	0.6
Upper John Day	2.6	1.5	0.5

Chilcote (2001) also determined Ricker  $a$  parameter estimates assuming that the pattern of these  $a$  parameters related directly to the pattern of productivity and recruitment for each population over time. When he looked at the overall pattern of 15 populations of Oregon steelhead with relatively low hatchery fish influence the existence of a cyclic phenomenon with respect to recruitment was apparent. It appeared that a cycle with a period of approximately 18 years explained much of the observed annual variation in recruitment. Because this pattern was so widespread it is probably the result of a shared controlling factor, which is most likely ocean conditions.

**1.3.2) Description of the current status of each population (or management unit) relative to its “Viable Salmonid Population thresholds” described above. Include abundance and/or escapement estimates for as many years as possible.**

Chilcote (2001) used a PVA model to assess the conservation status of each population within the John Day River basin with respect to specific criteria for the status designations “Threatened and Endangered”. None of the John Day populations were found to be at risk of becoming either "Threatened" or "Endangered" (Table 5).

Table 5. Results of PVA for John Day River steelhead populations with respect to criteria for classification of endangered and threatened. Results presented as a probability of population extinction.

<u>Sub-population</u>	<u>Threatened</u> <u>Endangered</u>
Lower John Day	0.0000.000
Lower NF John Day	0.0000.000
Upper NF John Day	0.0000.000
Middle Fork John Day	0.0000.000
South Fork John Day	0.0000.000
Upper John Day	0.0000.000

#### **1.4) Harvest Regime**

The primary focus of this FMEP is on fisheries for summer steelhead throughout the John Day River basin. The long-term intent is for consumptive fisheries on stray hatchery steelhead with catch and release required for incidentally caught wild fish. Once thresholds levels described later in this plan are achieved, we propose to allow a limited consumptive fishery on wild steelhead in the portion of the basin upstream of Cottonwood Bridge (RM 38). See section 1.1.1 and 1.4.2 for criteria when and where consumptive fisheries for wild fish would be authorized.

##### **1.4.1) Provide escapement objectives and/or maximum exploitation rates for each population (or management unit) based on its status.**

The long-term recovery objective for John Day steelhead is to achieve spawner escapements necessary to yield maximum sustainable production of recruits. Based on data provided by Chilcote (2001), the 6-population average spawner density necessary to meet this objective is 6.3 fish per mile, which corresponds to 4.7 redds per mile.

Maximum exploitation rates were developed for all populations. However, the term “fishery mortality rate” was used instead of “exploitation rate” to clarify that when catch and release regulations are in effect, only a small fraction of the fish that are caught are actually removed from the spawning population as a result of unintended post-release mortality.

The maximum fishery mortality rate for all John Day populations is set at 20% based upon the PVA findings presented by Chilcote (2001).

##### **1.4.2) Description of how the fisheries will be managed to conserve the weakest population or management unit.**

This plan proposes to manage steelhead in the John Day River basin in order to protect the most at risk populations. The most at risk populations are in the Upper and Middle Fork John Day River based upon their response to hypothetical increases in mortality as modeled by Chilcote (2001). The average 6-year spawner density for these 2 populations is 2.7 redds per mile or 3.7 fish per mile.

Creel data in 1996 and punchcard estimates during years when retention of wild steelhead was permitted indicate wild fish catch rates in the John Day River basin averaged approximately 12% (Table 7). This average included years in which bag limits allowed retention of 2 fish per day and up to 20 fish per year and also includes a fairly large component of hatchery fish. For 1996 (the only year in which statistical creel data is available) the wild to hatchery ratio below Cottonwood Bridge (where most

fish are caught) is approximately 52:48, so the estimated 12% catch rate on wild fish is likely twice as high as actually occurs. Based on these data we estimate the potential encounter rate of wild steelhead in the John Day River fishery to be in the range of 6 to 12% of wild steelhead present in the basin. A fishery requiring release of wild fish has been in effect for the last five years (since 1995) so in basin fishery related mortality rates (likely less than 1% [ $12\% \text{ encounter rate} \times 5\% \text{ hooking mortality rate} = 0.6\%$ ]) and angling effort have dropped dramatically.

To ensure escapement and fishery management objectives are met, the following safeguards will be implemented within the John Day River sport fishery. When abundance of wild fish is low, no retention of wild fish will be permitted. Additional conservation actions designed to lower hook and release mortality when viable threshold numbers are not reached could include reduced season length, reduce open area or further terminal tackle restrictions. Failure to meet critical threshold abundance would likely trigger a total closure of fishing for all or part of the summer steelhead run timing.

Spawning densities for all populations in the John Day basin have exceeded those identified by Chilcote (2001) as being necessary for viability for all years. Results of the PVA modeling indicate that minimum observed abundances for all sub-populations exceed the viable and critical thresholds (Table 4).

A variety of studies have shown that hooking location is a primary factor influencing survival and that if hooked in the gut or gills mortality increases (Malchoff et. al. 1992). Bruesewitz (1995) studied hook placement for both summer and winter steelhead fisheries. She found that over 96% of the time, summer steelhead were hooked in non-critical hook locations. Several studies have shown that catch and release fisheries result in mortality of less than 5% of those fish that were caught (Hooton 1987). If we assume anglers will catch about 12% of the steelhead entering the John Day River, angler induced mortality from the catch and release fishery will average approximately 0.6%.

When abundance of wild fish is enough to trigger the proposed 1 wild fish per day, 5 per year bag limit, additional angler induced mortality on wild fish will average less than 6% ( $12\% \text{ encounter rate of all fish present} \times 48\% \text{ of fish present in the lower river being wild} = 5.8\%$ ). The trigger for switching to this limited consumptive fishery on wild fish in the John Day will be based on the performance indicators discussed in section 1.1.1. Specifically, when the average redd density for the Middle Fork and Upper John Day populations is expected to be greater than 2.7 redds/mile and the wild A-run escapement over Bonneville Dam is greater than 38,000, a switch to a limited consumptive fishery is authorized. There is no sport fishery planned that would allow retention of wild fish in areas where large numbers of hatchery fish are found, specifically below Cottonwood Bridge at River Mile 38.

Implementation of a consumptive fishery on wild fish would be allowed only if the conditions under the following scenario are reached.

- Three consecutive years of spawning surveys in the John Day River that exceed 2.7 redds per mile.
- Four consecutive years of 38,000 wild A-run steelhead counted over Bonneville Dam. The first three years that exceed 38,000 wild A-run steelhead counted at Bonneville Dam must correlate with the three consecutive years of redd counts that exceed 2.7 redds per mile.
- During the fourth year when 38,000 wild A-run steelhead are counted at Bonneville Dam the Department will propose that the Fish and Wildlife Commission (Commission) adopt temporary rules modifying the current wild fish catch and release rule to allow a consumptive bag limit of a one wild steelhead per day, five wild steelhead per year (only for that portion of the basin upstream of Cottonwood Bridge at RM 38). Wild A-run counts at Bonneville Dam will be available by mid- to late-August so the proposal would be heard by the Commission during the meeting normally scheduled for August.
- The Commission must vote in favor of the temporary rule after public testimony.
- If all the above conditions are met, the consumptive fishery on wild steelhead above Cottonwood Bridge would take place beginning in late September and continue through the following April. If, after yearly updates, the performance indicators continue to be above the levels specified, then the temporary rule allowing harvest of wild steelhead would remain in effect in subsequent years.

If a consumptive fishery on wild steelhead is allowed there must also be a mechanism for closing the fishery when the performance indicators above are not reached. If either the wild A-run steelhead count at Bonneville Dam falls below 38,000 or the redd count falls below 2.7 redds/mile for one year, then the Department would propose to revert back to a catch and release only fishery.

Redband trout occur throughout the basin and westslope cutthroat trout occur in the upper John Day River and tributaries and a few tributaries of the North Fork John Day River. However, the John Day River is not highly regarded by most anglers for its trout angling opportunities. Presently, angling effort for trout is targeted to standing water bodies where the Department routinely stocks hatchery fingerling or legal sized rainbow trout.

Historically, most of the trout angling effort in streams was associated with areas where legal or fingerling rainbow were released. An evaluation of the Department's fingerling rainbow stocking program in the South and Middle forks was completed in 1995. The evaluation concluded that the stocked fingerling were not being caught by the few anglers interviewed and that there were adequate numbers of wild, legal-sized rainbow trout in both streams to support the modest fishery.

Since 1998, there have been no releases of hatchery rainbow trout into any streams within the basin. The trout-angling season for streams does not open until the fourth Saturday in May and the minimum legal size is 8 inches. Monitoring of smolt migration at irrigation diversion bypass traps and professional judgement indicate that most steelhead smolts have emigrated by the second week in May. Juvenile *O. mykiss* length frequency data from selected steelhead spawning and rearing streams indicates that 98% of them are less than six inches long. The combination of a late opener and the eight-inch minimum size limit provides significant protection for juvenile steelhead and smolts.

It is difficult to quantify the impacts to juvenile steelhead from sport fishing because of the lack of information specific to the John Day River. However, given the current regulations that are in place to protect juvenile steelhead, the dispersed nature of the fishery and cessation of trout stocking after 1997, it is estimated that <1% of rearing juvenile steelhead in the John Day River subbasin are caught and released in the trout fishery.

The warmwater (smallmouth bass) fishery occurs primarily in the John Day River below Kimberly and in the North Fork from Kimberly to Wall Creek. These sections of the river are migration corridors for adult and smolt steelhead, and are not used for rearing due to warm water temperatures that can be lethal to salmonids during summer months.

The warmwater fishery usually begins in mid- to late-May after most of the steelhead smolts have emigrated from the river and continues through October (Shrader and Gray 1999). A creel survey of warmwater fish anglers on the John Day River below Kimberly during 1992 and 1993 estimated that 68 “trout” were released and 154 “trout” were kept in almost 30,000 angler trips. Regulations prohibit keeping any trout less than 8 inches long.

**1.4.3) Demonstrate that the harvest regime is consistent with the conservation and recovery of commingled natural-origin populations in areas where artificially propagated fish predominate.**

There are no releases of hatchery-reared steelhead in the entire basin; however, substantial numbers of out-of-basin stray hatchery steelhead are observed in the lower 38 miles of the river. There is no sport fishery planned that would allow retention of wild fish in areas where large numbers of hatchery fish are found, specifically below Cottonwood Bridge at River Mile 38. The management emphasis in this reach of river is on harvest of hatchery steelhead with mandatory wild steelhead release regulations in place.



The populations at the highest probability of qualifying for sensitive status are those in the Middle Fork and Upper Mainstem John Day River. Population viability analysis of all populations within the John Day River basin indicate that viability will be maintained at levels that are 65% or less of the most recently observed spawning densities (Chilcote 2001). Recent spawning densities in the Upper Mainstem include the lowest spawning escapement ever observed in 1995 (1.0 redds/mile) and the second lowest abundance ever observed in 1999 (1.4 redds/mile). Spawning densities for the Upper Mainstem sub-population have increased to 2.2 redds per mile in 2000.

Other indicators, such as Bonneville Dam counts of wild A-run steelhead, ocean productivity, counts of spawning steelhead in other areas, and spring chinook adult and jack abundance within the basin indicate that smolt to adult survival rates have increased in at least the last two years. Large segments of steelhead habitat within the John Day River are mostly intact and accessible to returning adults. Improving riparian management on private and public lands within the last 20 years will contribute to increased egg to smolt survival rates. Under the current catch and release fishery regime, we estimate the fishery mortality rate of wild fish to be likely less than 0.6% of the population (12% encounter rates x 5% hooking mortality rate) (See Section 1.4.2).

Trout fisheries occur in areas where juvenile steelhead rear, however, angling effort is relatively low and the regulations are designed to protect rearing juvenile steelhead. During a three-year time period, two Oregon State Police officers spent a total of 98 hours specifically looking for angling violations on the John Day River above Prairie City. They contacted 29 anglers and issued one citation for no angling license. This area is closest to the largest population base in the basin and is used extensively by juvenile steelhead and salmon for rearing. Trout angling effort is relatively low, even in the most intensively fished streams within the John Day River basin. A statistical creel survey on the Middle and South forks of the John Day River in 1995 encountered an average of 1.5 anglers per day from the first week in June through the end of October. These two streams have the largest populations of legal sized rainbow trout within the basin.

There is virtually no warmwater fishery in the John Day River above Kimberly or above Wall Creek on the North Fork John Day River because the abundance of smallmouth bass is relatively low. The probability of encountering juvenile steelhead increases as one progresses upstream due to decreased water temperatures and improving habitat conditions.

It is difficult to quantify the impacts to juvenile steelhead from sport fishing because of the lack of information specific to the John Day River. However, given the current regulations that are in place to protect juvenile steelhead, the dispersed nature of the fishery and cessation of trout stocking after 1997, it is estimated that <1% of rearing juvenile steelhead in the John Day River subbasin are caught and released in the trout fishery.

### **1.5) Annual Implementation of the Fisheries**

The Oregon Fish and Wildlife Commission (Commission) adopts angling regulations every year with an extensive public involvement process every four years. This process begins about one year in advance of when specific regulations are actually adopted. Current regulations require release of wild (unmarked) steelhead in the John Day River and trout and warmwater fisheries are designed to protect juvenile steelhead. There is no sport fishery planned that would allow retention of wild fish in areas where large numbers of hatchery fish are found, specifically below Cottonwood Bridge at river mile 38.

Numbers of steelhead returning to the John Day River basin can be estimated by determining the number of wild A-run steelhead passing over Bonneville Dam. This relationship has been described in Section 1.1.1 of this plan. These estimates are available by the end of August each year, which is usually at least a month prior to significant numbers of steelhead entering the John Day River. If estimates of wild A-run steelhead counted at Bonneville Dam indicate additional conservation measures are necessary, then emergency regulations further restricting fisheries can be implemented.

There is also a process in place to implement regulations on a much shorter time schedule than every four years that addresses emergency conditions. These emergency regulations can be adopted by the Commission within 2 weeks if a Commission meeting is scheduled near the same date. The Commission has also delegated to the Director of ODFW the authority to adopt emergency regulations. If the Director adopts emergency regulations, they can be implemented within a matter of days from the time they are submitted.

## **SECTION 2. EFFECTS ON ESA-LISTED SALMONIDS**

### **2.1) Description of the biologically-based rationale demonstrating that the fisheries management strategies will not appreciably reduce the likelihood of survival and recovery of the affected ESU(s) in the wild.**

The objective of the proposed harvest regime is to ensure that harvest of hatchery steelhead and catch and release of wild steelhead is consistent with the recovery of listed populations in the John Day basin. The conservative in-river harvest strategies proposed in this FMEP are thought to meet the objective of population recovery. Because the proposed fishery management strategies result in fishery mortality rates that are substantially less than the 20% maximum fishery mortality rate recommended by Chilcote (2001) for populations of steelhead in Oregon (<1% under catch and release regulations and <6% when a modest wild fish harvest is allowed), the proposed fishery should not reduce the likelihood of survival and recovery of the affected population. Chilcote (2001) found that the probability of extinction

for nearly all steelhead populations modeled throughout Oregon was found to be zero when harvest rates were restricted to 20% or less.

There are several environmental and geographic features in the basin that in combination, provide protective mechanisms to prevent over harvest of wild steelhead in the John Day basin. The John Day River steelhead fishery is unique in several respects. Angler access is limited by the lack of a road along the river throughout much of the basin. Access is further restricted by the presence of private lands and by point of entry locations on public land. The lower 158 miles has eight public access points or reaches, namely at Rock Creek (RM 22), Cottonwood Bridge (RM 38), Clarno (RM 106.5-109.5), Clarno South (RM 112), Burnt Ranch (RM 132.5), Priest Hole (137.5), Twickenham (RM 144), and Service Creek (RM 158).

Warm water temperatures and low streamflows throughout summer months preclude upstream passage of steelhead into the lower John Day River. Steelhead movement is determined primarily by streamflows but secondarily by water temperatures. When water temperatures are below 42 degrees upstream movement declines dramatically. In years when the river freezes over, upstream movement virtually stops. In late winter as temperatures increase and ice begins to break up, movement increases substantially until adults reach spawning areas.

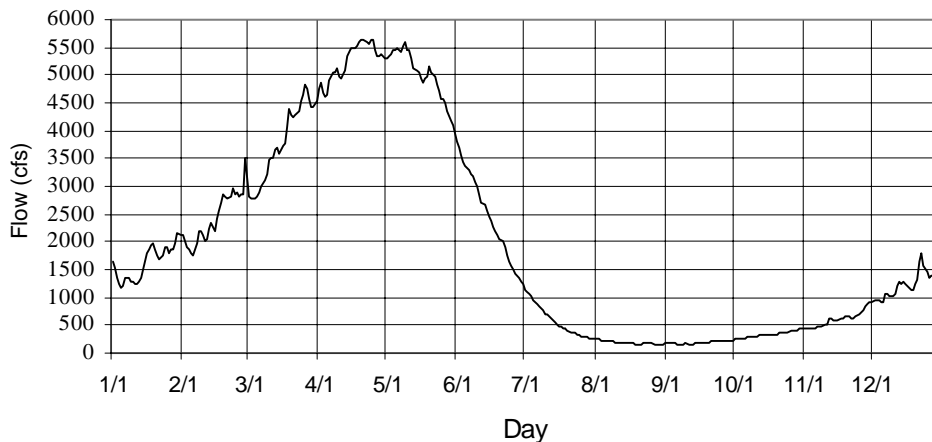


Figure 3. Average stream flow at the Service Creek gauging station, 1929-1998.

Seasonally low water also restricts boat access throughout most of the summer and fall. Most of the river is marginally boatable to drift boats and rafts at flows less than 500 cubic feet per second (cfs). In most years a flow of 500 cfs is not attained (Figure 3) until the second week in November, which is after water temperatures have dropped and catch rates decline.

The steelhead fishery within the John Day River basin has historically been split into two phases and dependent upon movement and presence of fish. The fall fishery, located in the lower 40 miles, begins in late September as water temperatures start to moderate and reaches a peak in late October. It gradually subsides until water temperatures decline to less than 50 degrees, usually in mid-November. The fishery follows steelhead migration and gradually progresses upstream, until either winter ice or floodwaters limit access and angler success.

The spring fishery is the second phase and commences in mid- to late-February as streamflows subside and water temperatures begin to rise. Angler effort during the spring fishery is spread throughout the upper basin from Service Creek to deadlines on the North and Middle forks at Highway 395 and to the deadline on the mainstem at Indian Creek. Effort peaks in February and continues until the April 15 closure. Most fish have moved upriver of Kimberly (river mile 185) by the first week in April and into spawning areas by late April. All spawning tributaries are closed to steelhead angling year round and closed to trout angling from November 1 until the fourth Saturday in May.

Available creel information showing the most recent 10 years of catch rates by month for wild and hatchery fish in each section of the river is summarized in Table 6.

Table 6. Steelhead Creel 1990 Through 1999 Averages.

Month	Zone	Hours	Fish/Angler		Fish/Hour		Hours/Fish
			Wild	Hatchery	Wild	Hatchery	Total
Sept.	1	45	1.39	0.57	0.22	0.09	3.28
Oct.	1	130.7	0.65	0.76	0.14	0.17	1.12
Nov.	1	72.9	0.86	0.74	0.19	0.16	1.76
	Avg.	82.87	0.97	0.69	0.18	0.14	2.05
Sept.	2	22.3	0.09	0.09	0.04	0.04	22.50
Oct.	2	130.4	0.12	0.18	0.03	0.05	4.29
Nov.	2	107.6	0.34	0.56	0.09	0.14	1.80
Dec.	2	125.1	0.41	0.27	0.09	0.06	2.32
Jan.	2	142.2	0.29	0.17	0.08	0.04	2.65
Feb.	2	179.6	0.15	0.11	0.05	0.03	3.21
Mar.	2	87.2	0.03	0.05	0.01	0.02	17.31
April	2	2	0.00	0.00	0.00	0.00	0.00
	Avg.	99.55	0.18	0.18	0.05	0.05	6.76
Dec.	3	18	0.86	0.00	0.17	0.00	15.00
Jan.	3	24.3	0.00	0.00	0.00	0.00	0.00
Feb.	3	52.6	0.07	0.00	0.03	0.00	28.13
Mar.	3	119.8	0.10	0.10	0.04	0.04	4.59
April	3	15.8	0.14	0.03	0.06	0.01	37.50
	Avg.	46.10	0.23	0.02	0.06	0.01	17.04
Jan.	NF	16.7	0.11	0.00	0.02	0.00	150.00
Feb.	NF	26.6	0.15	0.00	0.06	0.00	30.00
Mar.	NF	101.5	0.16	0.08	0.05	0.02	6.25
April	NF	35.2	0.09	0.03	0.03	0.01	34.62
	Avg.	45.00	0.13	0.03	0.04	0.01	55.22
Mar.	MF	32.5	0.03	0.03	0.02	0.02	45.00
April	MF	22.3	0.52	0.00	0.15	0.00	13.64
	Avg.	27.40	0.28	0.02	0.08	0.01	29.32

Zone 1= Tumwater to Cottonwood Bridge, Zone 2=Cottonwood Bridge to Kimberly, Zone 3= Kimberly to Indian Creek, North Fork= Kimberly to deadline at Highway 395, Middle Fork= Mouth to deadline at Highway 395

As stated earlier, escapement goals of 2.7 redds per mile throughout the basin will be twice the level needed to maintain viable populations in the most vulnerable populations with a fishing mortality rate of 15%. This plan specifies a total maximum fishery mortality rate of approximately 20%. Over the last 6 years the average mortality of wild fish in the mainstem Columbia sport and commercial fishery has been 9.6% (Chilcote 2001).

Catch estimates indicate approximately 0.6% of the wild adult steelhead could be lost due to catch and release hooking mortality in the John Day River fishery (12% catch rate x 5% hooking mortality rate, see section 1.4.2).

With the addition of a limited consumptive fishery proposed on wild fish during high abundance years, the fishery mortality rate within the John Day River should not exceed 6%. This results in a cumulative harvest rate (mainstem Columbia and John Day River of 15.6%). This level is less than the maximum fishery mortality rate objective of 20% described in section 1.4.1.

**2.1.1) Description of which fisheries affect each population (or management unit).**

All sub-populations within the John Day River basin are affected by Columbia River treaty, commercial gill net and sport fisheries. The estimated mortality associated with mainstem Columbia sport and the Zone 6 tribal treaty fishery has averaged 9.6% for the last 6 years (Chilcote 2001, ODFW and WDFW 2000, and Curt Melcher 2000, personal communication).

This plan will address only fisheries that occur in the John Day River basin above the slackwater created by Lake Umatilla (the reservoir impounded by John Day Dam). Catch estimates within the basin are based upon steelhead punch card returns and one year of angler statistical creel. In the last 5 years there has not been a targeted harvest on wild fish within the basin. Subsequently, punch card returns are not a reliable indicator of catch. Under this scenario, we estimate approximately 0.6% of the wild steelhead population is lost due to catch and release hooking mortality (see Section 1.4.2).

Although John Day River steelhead share common factors that affect all populations within the ESU (ocean conditions, mainstem Columbia River passage conditions, drought, etc.), each population has other factors that are not shared. Fisheries proposed in this FMEP will not affect recovery of other populations within the Middle Columbia Steelhead ESU because they have certain characteristics that are not shared with the John Day River. Unlike other populations within the Oregon portion of the Middle Columbia ESU, the John Day River population is not supplemented with hatchery steelhead, there are no major impoundments or dams on the John Day River, and there is an extensive network of tributaries with relatively intact habitat throughout the John Day River basin where spawning and rearing occurs.

A relatively healthy population of spring Chinook salmon also occupies the John Day River. There has been no angling permitted on spring Chinook salmon within the John Day River since 1976.

Trout fisheries protect juvenile steelhead through an 8-inch minimum size limit and by restricting the trout season to times when they are the least vulnerable (the fourth Saturday in May to October 31). Area closures are in effect for the Granite Creek system and for the

Middle Fork from Highway 7 up to Summit Creek. These closures were enacted primarily to protect Chinook salmon, but also protect bull trout and juvenile steelhead.

Trout angling effort remains low throughout the John Day River basin. A statistical creel program in 1995 on the two most intensively fished areas within the basin (South Fork and Middle Fork) found that an average of 1.5 anglers were encountered per day. The survey also found that a high proportion of fish caught by anglers were released. The creel survey estimated that a total of 2,720 rainbow trout were caught and released and 761 were kept.

No stocking of hatchery rainbow trout occurs within any stream in the John Day River basin. The Department has transferred historic stocking of streams to standing water bodies in an attempt to focus angler effort in those areas. Due to these factors, it is estimated that only a small percentage (<1%) of the juvenile steelhead rearing in the John Day River basin would be caught and released during the trout fishery because of the current angling regulations (closure periods and 8" minimum) and the low intensity nature of the fishery.

Warmwater fisheries should have little, if any impact on the steelhead population because they occur primarily at a time and location where juvenile and adult steelhead are not present. Additionally, most warmwater anglers use terminal angling gear that reduces the probability of catching steelhead, and if hooked it, facilitates easy release.

**2.1.2) Assessment of how the harvest regime will not likely result in changes to the biological characteristics of the affected ESUs.**

The current and proposed harvest regime for John Day River steelhead, trout, and warmwater fish has not and will not result in changes to the biological characteristics of wild John Day River steelhead. These characteristics have been and will continue to be monitored as part of the monitoring and evaluation portion as described in Section 3.1 of this FMEP. Regulations requiring catch and release of wild steelhead have been in effect since 1996. Mortality to John Day River wild steelhead by sport anglers, as a result of incidental hook and release mortality, has not and will not affect the biological characteristics of the listed steelhead.

Any fisheries management strategy that includes harvest has both direct and indirect harvest. Direct harvest takes place when legally caught fish are retained as part of the daily limit. This FMEP does not propose direct harvest of wild steelhead in the John Day River in the near term. This FMEP focuses on maintaining wild harvest rates that are consistent with recovery of the population. The small hook and release mortality rates to John Day River steelhead covered under this plan are not expected to exert selective pressure on any single characteristic that will affect genetic diversity.

Since both the existing and proposed fisheries would encompass the entire spectrum of run-timing and be conducted on a mix of all the sub-populations, the probability of changing biological characteristics is very small.

**2.1.3) Comparison of harvest impacts in previous years and the harvest impacts anticipated to occur under the harvest regime in this FMEP.**

Estimating historic harvest rates of wild John Day basin steelhead is difficult for a variety of factors, but has likely declined significantly in recent years. Creel data in 1996 and punch card estimates during years when retention of wild steelhead was permitted indicate wild fish catch rates in the John Day River basin ranged between 6 and 12%. This average included years in which bag limits allowed retention of 2 fish per day and up to 20 fish per year and also includes a fairly large component of hatchery fish. A fishery requiring release of wild fish has been in effect for the last five years (since 1995) so fishery related mortality rates (likely less than 1%) and angling effort have dropped dramatically.

Determining in-river catch rates on wild John Day River steelhead is very difficult due to the number of out of basin hatchery fish straying into the lower river and the lack of a credible method to determine actual number of wild John Day steelhead returning to the river. The Department has conducted steelhead spawning surveys each year since 1959 to monitor relative abundance. During the last 10 years, the number of miles surveyed has averaged 97.1 miles, which is less than 6% of the total number of stream miles available to steelhead in the basin. The size of the basin and limited resources preclude making reliable estimates of the total number of steelhead.

Recognizing the difficulty in determining the number of steelhead returning to the John Day River, we have attempted to estimate the number by multiplying the number of redds/mile by the average number of fish per redd (1.67) and then expanding that by the amount of spawning and rearing habitat available to steelhead throughout the basin. There are 1,759 miles of habitat utilized by steelhead for spawning and/or rearing within the John Day River basin. Results of those estimates and numbers of fish caught are presented in Table 7.



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Table 7. Estimated steelhead run size and in-river harvest for the entire John Day River (Tumwater Falls to angling deadlines) with a two-fish per day and 20 fish per year bag limit.

Spawning Year	Wild Fish Catch <sup>a</sup>	Wild Escapement	Total Wild Run	Proportion Caught <sup>b</sup>
1959	2694	19872	22566	0.12
1960	7381	23631	31012	0.24
1961	4416	18260	22676	0.19
1962	1366	18529	19895	0.07
1963	2930	19066	21996	0.13
1964	2149	16381	18530	0.12
1965	2574	20409	22983	0.11
1966	4676	42966	47642	0.10
1967	4568	31150	35718	0.13
1968	3506	12890	16396	0.21
1969	2870	23900	26770	0.11
1970	2629	21751	24380	0.11
1971	2381	21483	23864	0.10
1972	3068	20409	23477	0.13
1973	3290	14232	17522	0.19
1974	891	11816	12707	0.07
1975	2784	23900	26684	0.10
1976	1506	13964	15470	0.10
1977	2919	19066	21985	0.13
1978	1421	11547	12968	0.11
1979	n.a.	2685	2685	n.a.
1980	n.a.	9130	9130	n.a.
1981	n.a.	9936	9936	n.a.
1982	n.a.	11279	11279	n.a.
1983	n.a.	13158	13158	n.a.
1984	n.a.	10204	10204	n.a.
1985	n.a.	22886	22886	n.a.
1986	n.a.	29539	29539	n.a.
1987	n.a.	34272	34272	n.a.
1988	n.a.	36378	36378	n.a.
1989	3076	9612	12688	0.24
1990	2570	12024	14594	0.18
1991	647	7218	7865	0.08
1992 <sup>c</sup>	2277	17136	19413	0.12
1993	164	7218	7382	0.02
1994 <sup>c</sup>	384	3908	4292	0.09
1995 <sup>c</sup>	232	6613	6845	0.03
1996 <sup>d</sup>	287	5410	5697	0.05

<sup>a</sup> Unknown proportion catch between 1978 and 1988 were hatchery fish, therefore calculation of wild catch was not possible. <sup>b</sup> Calculated using a ratio of wild and hatchery fish reported caught on steelhead punch cards, data available for 1989-1996 only <sup>c</sup> Emergency regulations in effect <sup>d</sup> Catch and release regulations for wild fish went into effect after September 1995.

As evidence of the stray hatchery fish phenomenon throughout the Mid Columbia River ESU, significant numbers of stray hatchery steelhead began to show up in the Deschutes River basin beginning in the early 1980's (ODFW 1997). ODFW conducts statistical creel on the Deschutes every year and operates an adult trap at Sherars Falls so is able to monitor incidence of straying much more reliably in that basin than in the John Day River. The number of stray hatchery steelhead that pass Sherars Falls from 1981 through 1994 has ranged between 1,200 and 9,803 (ODFW 1997).

The number of hatchery strays increased in the John Day River during the same time period as evidenced by the number of marked steelhead reported on punch cards. Therefore, some of the steelhead caught after 1978 may have been hatchery strays. As a result, it was not possible to estimate the wild catch in the John Day Basin from 1978 until 1988. Beginning in 1988, anglers were required to record on steelhead punch cards whether the steelhead they caught were marked or unmarked. The punch cards indicate an average of 51% of the fish caught between 1988 and 1998 were marked (Table 8). If that number is correct, we estimate that the catch rate of wild fish in the John Day River could be as low as 6% in recent years.

Another protective factor has been our observation that steelhead angler effort has declined substantially since regulations prohibiting retention of wild steelhead have been in effect.

Any potential impacts from trout anglers on juvenile steelhead have also been significantly reduced in recent years. Trout fisheries protect juvenile steelhead through an 8-inch minimum size limit and by restricting the trout season to times when they are the least vulnerable (the fourth Saturday in May to October 31). Area closures are in effect for the Granite Creek system and for the Middle Fork from Highway 7 up to Summit Creek. These closures were enacted primarily to protect Chinook salmon, but also protect bull trout and juvenile steelhead.

Historically, trout anglers focused on areas where stocking of legal or fingerling rainbow trout occurred. The Department has eliminated the stocking of hatchery rainbow trout into streams and shifted those allocations to standing water bodies in an effort to discourage angling in steelhead spawning and rearing areas.

Prior to trout stocking being discontinued, a statistical creel program in 1995 on the two most intensively fished areas within the basin (South Fork and Middle Fork) found that an average of only 1.5 anglers were encountered per day. The survey also found that a high proportion of fish caught by anglers were released. Now that stocking has been discontinued, trout angler use on John Day basin streams has declined even further. Due to these factors, it is estimated that only a small percentage (<1%) of the juvenile steelhead rearing in the John Day River basin would be caught and released during the trout fishery because of the current angling regulations (closure periods and 8" minimum) and the low intensity nature of the fishery.

Warmwater fisheries should have little, if any impact on the steelhead population because they occur primarily at a time and location where juvenile and adult steelhead are not present. Additionally, most warmwater anglers use terminal angling gear that reduces the probability of catching steelhead, and if hooked it, facilitates easy release.

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Table 8. Estimated catch of marked and unmarked steelhead in the John Day River and tributaries as reported on steelhead punch cards.

Run Year	Location <sup>a</sup>	Estimated Catch		Total
		Marked (%)	Unmarked (%)	
1988	MF	12 (24)	37 (76)	49
	NF	12 (43)	16 (57)	28
	JDR	1,510 (33)	2,996 (67)	4,506
1989	MF	24 (55)	20 (45)	44
	NF	0	55 (100)	55
	JDR	2,324 (47)	2,596 (53)	4,920
1990	MF	36 (58)	26 (42)	62
	NF	23 (50)	23 (50)	46
	JDR	1,390 (70)	601 (30)	1,991
1991	MF	16 (12)	115 (88)	131
	NF	163 (40)	242 (60)	405
	JDR	1,352 (43)	1,798 (57)	3,150
1992	MF	4 (100)	0	4
	NF	0	0	0
	JDR	487 (55)	399 (45)	886
1993	MF	0	42 (100)	42
	NF	20 (28)	52 (72)	72
	JDR	557 (64)	302 (35)	859
1994	MF	3 (9)	30 (91)	33
	NF	7 (17)	33 (83)	40
	JDR	761 (81)	176 (19)	937
1995	MF	3 (33)	6 (67)	9
	NF	38 (63)	22 (37)	60
	JDR	778 (65)	428 (35)	1,206
1996	MF	6 (11)	48 (89)	54
	NF	54 (41)	79 (59)	133
	JDRBC	184 (63)	108 (37)	292
	JDRAC	0	3 (100)	3
	JDR	529 (70)	223 (30)	752
1997	MF		110 (100)	110
	NF	84 (34)	161 (66)	245
	JDRBC	682 (80)	171 (20)	853
	JDRAC	70 (47)	80 (53)	150
	JDR	610 (72)	234 (28)	844
1998 <sup>b</sup>	MF	0	0	0
	NF	0	0	0
	JDRBC	546 (78)	154 (22)	700
	JDRAC	4 (40)	6 (60)	10
	JDR	40 (78)	11 (22)	51
Totals		12,329 (51)	11,403 (49)	23,732

<sup>a</sup> MF=Middle Fork, NF=North Fork, JDR=John Day River, JDRBC=John Day River below Cottonwood Bridge, JDRAC=John Day River above Cottonwood Bridge, JDR=John Day River <sup>b</sup>Data available for 1998 only

**2.1.4) Description of additional fishery impacts not addressed within this FMEP for the listed ESUs specified in section 1.3. Account for harvest impacts in previous year and the impacts expected in the future.**

Other fisheries that could impact overall mortality of John Day River steelhead include sport fisheries and Zone 6 Treaty Tribal gillnet fisheries in the mainstem Columbia River. Mortality associated with the Zone 6 fishery has averaged 8.3% for the last 5 years. No retention of wild steelhead is permitted in mainstem Columbia River sport fisheries, and mortality is assumed to be approximately 10% of the fish caught and released. The combined Zone 6 Treaty and mainstem Columbia River sport fishery mortality has averaged 9.6% for the last 10 years (Chilcote 2001, ODFW and WDFW 2000). An agreement has been reached with Treaty Tribes to limit harvest of steelhead in the Zone 6 fishery to less than 15% (ODFW 2000). Mortality associated with the catch and release sport fishery in the Columbia River is expected to remain at approximately 10% of wild steelhead handled in the sport fishery.

In-river tribal harvest is also not addressed in this plan. The Confederated Tribes of the Warm Springs Reservation of Oregon have expressed a desire to harvest steelhead at Tumwater Falls by dip netting when a consumptive sport fishery is permitted. Since there is no historical information regarding tribal harvest numbers, it is extremely difficult to estimate potential harvest rates or numbers.

Harvest impacts proposed in this FMEP will be consistent with and will not preclude proposed future harvest of John Day River steelhead by tribal co-managers.

### **SECTION 3. MONITORING AND EVALUATION**

**3.1) Description of the specific monitoring of the “Performance Indicators” listed in section 1.1.3.**

Monitoring of the John Day River steelhead population will occur by utilizing the following methods.

- Counts of wild A-run steelhead passing Bonneville Dam will be evaluated by August 15 each year to make preseason predictions of spawner densities in the John Day River basin.
- The relationship between numbers of wild A-run steelhead passing Bonneville Dam versus the density of spawners observed during yearly steelhead spawning surveys will be updated annually. If adjustments are needed, they will reflect the numbers of wild A-run steelhead needed to reach redd densities of 2.7 redds/mile.
- We will continue to update juvenile *O. mykiss* densities as time and resources allow. Priority areas include South Fork and Upper Mainstem tributaries.
- Spawning surveys will be conducted each year on a minimum of 85 miles of stream to monitor trend in adult escapement and continue a 42-year data set.

- We propose to conduct annual creel surveys for steelhead anglers on the John Day River from Tumwater Falls to the upstream deadlines to assess angling pressure, catch rates, proportion of hatchery fish, and distribution of hatchery fish. If a consumptive fishery is permitted, the creel will enable us to determine harvest rates. Conducting creel will be dependent upon adequate funding.
- Scales will be collected from all spawned out steelhead carcasses and adult steelhead mortalities observed during an ongoing Chinook research study. Information from these scales will be used to monitor age structure of both adults and smolts.
- Periodic Oregon State Police checks of trout anglers for compliance with trout regulations.

**3.2) Description of other monitoring and evaluation not included in the Performance Indicators (section 3.1) which provides additional information useful for fisheries management.**

A spring Chinook life history research study has been ongoing in the John Day River basin for the last three years. As part of this study, a beach seine is used in the mainstem John Day River in the spring to collect juvenile Chinook salmon so that PIT tags can be implanted. Many steelhead smolts are also captured while seining. This operation would give us the opportunity to PIT tag steelhead smolts and determine smolt: adult survival rates.

Catch and release mortality rates from studies in other areas with similar characteristics will be used as indicators of catch and release mortality associated with the John Day River fishery.

**3.3) Public Outreach**

Anglers will be informed of fishery seasons and bag limit changes through:

- the synopsis of Oregon Angling Regulations published each December.
- signs at public access points along the John Day River.
- “Emergency Notice” flyers distributed to license vendors, district ODFW offices and on the ODFW web site.
- Regional Newspapers, and radio stations.

Enacting emergency regulations has occurred frequently for steelhead angling on the John Day River. The process for informing the public about changes in regulations has been in place for many years and has been well accepted. Oregon State Police monitor compliance of anglers with existing regulations each year, and to date compliance has been greater than 90%

### **3.4) Enforcement**

The Fish and Wildlife Division of the Oregon State Police (OSP) is responsible for the enforcement of fish and wildlife regulations in the State of Oregon. The Coordinated Enforcement Program (CEP) is a program designed to coordinate effective enforcement by ensuring the development of enforcement priorities and plans by and between OSP enforcement officers and ODFW biologists. Other parties such as United States Forest Service enforcement officers, local landowners, angling club representatives, and interested citizens are invited to participate in annual meetings to develop enforcement priorities. This involvement is critical as perspectives of user groups and other enforcement bodies are incorporated in the decision making process. ODFW Fish biologists set conservation needs as the highest enforcement priorities.

At coordination meetings, OSP officers share the previous year's results (compliance rates, compliance problems) with ODFW Biologists to assist in improving effectiveness and to assist in the development of angling regulations. All angling regulations developed by ODFW biologists are reviewed by OSP fish and wildlife officers to insure that the regulations are enforceable and can be done so effectively and efficiently.

Through standard enforcement patrols, OSP officers become aware of possible conservation problems (example: illegal harvest of a sensitive species during a season for other species). These issues are discussed at coordination meetings and strategies developed for solving the problem (development of enforcement strategies and/or development of angling regulation proposals).

Each year a compliance report is prepared by the Oregon State Police Game Officers stating number of anglers checked and number of unmarked steelhead illegally kept. These reports have shown a 100% compliance rate for the last 2 years. If compliance rates drop, then priority areas or patrol methods are modified in an attempt to increase the compliance rate.

### **3.5) Schedule and process for reviewing and modifying fisheries management.**

#### **3.5.1) Description of the process and schedule that will be used annually to evaluate the fisheries, and revise management assumptions and targets if necessary.**

Compliance with provisions in this plan will be evaluated each year by the John Day District staff and appropriate ODFW Portland staff. When steelhead angler creel surveys are implemented, harvest rates, angler effort, and regulation compliance will be monitored. If harvest rates exceed predicted levels, then appropriate reductions in bag limits or catch and release regulations will be implemented as deemed necessary.

- 3.5.2) Description of the process and schedule that will occur every 5 years to evaluate whether the FMEP is accomplishing the stated objectives. The conditions under which revisions to the FMEP will be made and how the revisions will likely be accomplished should be included.**

Brood year survival for wild summer steelhead in the John Day River can be assessed every five years, given average lengths of freshwater and ocean residency. This FMEP will be evaluated every five years for effectiveness. Comprehensive reviews will be repeated at that interval until such time as the ESU is declared recovered and is delisted. Revisions to this plan will be made as performance indicators suggest that the stated objectives are not being met. Revisions will be undertaken in cooperation with appropriate Portland Headquarters and Region staff, NMFS staff, the interested public and our tribal co-managers. The Technical Review Team will be consulted during the periodic review process. Revision of this FMEP will include changes and updates in the Population Viability Analysis and viable and critical thresholds.

#### **SECTION 4. CONSISTENCY OF FMEP WITH PLANS AND CONDITIONS SET WITHIN ANY FEDERAL COURT PROCEEDINGS**

This plan has been developed jointly with the Confederated Tribes of the Umatilla Indian Reservation and the Confederated Tribes of the Warm Springs Indians. The actions and objectives of this FMEP are subject to and consistent with the Columbia River Fish Management Plan (U.S. v Oregon).

This plan is consistent with applicable federal court proceedings.



## Appendix A. Forty-year steelhead spawning ground summary, John Day River Basin.

Year	Number of Streams Surveyed	Miles Surveyed	Steelhead	Redds	Redds Per Mile
1959	6	14.5	30	108	7.4
1960	10	22.0	60	194	8.8
1961	8	24.5	56	166	6.8
1962	10	26.5	56	184	6.9
1963	11	30.5	47	216	7.1
1964	13	43.5	51	266	6.1
1965	19	45.0	88	344	7.6
1966	23	69.0	141	1,103	16.0
1967	25	78.0	61	905	11.6
1968*	23	74.5	19	358	4.8
1969	27	91.5	76	806	8.9
1970	21	65.0	58	530	8.1
1971	8	22.5	18	181	8.0
1972	16	53.5	41	409	7.6
1973	25	76.4	22	402	5.3
1974**	14	38.0	4	167	4.4
1975**	14	34.0	21	302	8.9
1976	21	59.8	8	308	5.2
1977	30	75.5	69	535	7.1
1978	35	102.7	21	438	4.3
1979	29	78.7	4	81	1.0
1980	34	90.1	11	305	3.4
1981	33	86.1	12	319	3.7
1982	32	71.8	34	301	4.2
1983	31	89.3	39	438	4.9
1984	29	76.7	33	299	3.9
1985	39	120.3	88	1,016	8.5
1986	43	120.6	129	1,323	11.0
1987	61	154.3	82	1,757	11.4
1988	46	128	111	1,551	12.1
1989	35	106.5	42	340	3.2
1990	39	114.3	37	451	4.0
1991	29	91.9	8	225	2.4
1992	35	107.3	70	608	5.7
1993**	24	68.0	14	166	2.4
1994	38	114.6	6	352	3.1
1995**	34	104.1	8	135	1.3
1996	35	100.8	9	225	2.2
1997	33	96.5	15	165	1.7
1998	27	70.6	4	134	1.9
1999	28	82.8	20	174	2.1
2000	30	89.7	19	399	4.4
TOTALS					
AND	1,119	3,209.9	1,742	18,686	5.75
AVERAGES					

\*1968 was a low water year with an absence of spring runoff. Steelhead spawning escapement was nil in some areas.

\*\*Counts low due to high water in spring which smoothed out early redds and caused poor counting conditions.

References Cited

- Bruesewitz, S. L., 1995. Hook placement in steelhead. Washington Department of Fish and Wildlife. Technical Report Number AF95-01. 11 pp.
- Chilcote, M.W. 2001. Conservation Assessment of Steelhead Populations in Oregon - Draft. February 6, 2001. Oregon Department of Fish and Wildlife, Portland.
- Hooton, R. 1987. Catch and release as a management strategy for steelhead in British Columbia. In R. Barnhart and T. Roelofs, editors, Proceedings of catch and release fishing, a decade of experience. Sept 30-Oct 1, 1987. Humboldt State University, Arcata, CA.
- Malchoff M.H., M.P. Voiland, D.B. MacNeil. 1992. Guidelines to increase survival of released sport fish. Sea Grant Cornell Cooperative Extension. Fact sheet page 14.00. 6 pp.
- Oregon Department of Fish and Wildlife. 1997. Lower Deschutes River subbasin fish management plan. Portland, Oregon.
- Oregon Department of Fish and Wildlife. 2000. Joint staff report concerning 2000 inriver commercial harvest of Columbia River fall salmon, summer steelhead, coho salmon, and sturgeon. Oregon Department of Fish and Wildlife, Portland.
- ODFW and WDFW. 2000. Status Report - Columbia River fish runs and fisheries, 1938-1999. Washington Department of Fish and Wildlife and Oregon Department of Fish and Wildlife.
- Oregon Water Resources Department. 1986. John Day River basin report. Oregon Water Resources Department, Salem.
- Reingold, M. 1975. Effects of displacing, hooking, and releasing on migrating adult steelhead trout. Transactions of the American Fisheries Society 3:458-460.
- Satterthwaite, T. 1999. Population health goals and assessment methods proposed for Oregon populations of steelhead in the Klamath Mountain Province. Draft Report. Oregon Department of Fish and Wildlife, Portland.
- Shrader, T. and M.E. Gray. 1999. Biology and management of John Day River smallmouth bass. Information Report 99-1. ODFW. Portland.
- Taylor, G. and R.A. Barnhart. 1999. Mortality of angler caught and released summer steelhead. Final Report. California Cooperative Fishery Research Unit and Humboldt State University Foundation. California Department of Fish and Game. Steelhead Trout Catch Report-Restoration Card. Available from National Marine Fisheries Service, Hatcheries and Inland Fisheries Branch, 525 NE Oregon St, Suite 510, Portland, Oregon 97232.